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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/653,073	08/31/2000	Daryl Hlasny	TAL7146.078	4302

55648 7590 08/16/2006

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EXAMINER	
PATEL, ASHOKKUMAR B	
ART UNIT	**PAPER NUMBER**
2154	

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/653,073	HLASNY, DARYL	
	Examiner	Art Unit	
	Ashok B. Patel	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 are subject to examination. Claim 21 has been cancelled.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/18/2006 has been entered.

Response to Arguments

3. Applicant's arguments filed 11/14/2005 have been fully considered but they are not persuasive for the following reasons:

Applicant's argument:

"The Examiner's response to applicant's amendments and arguments failed to address the point of novelty argued by applicant in that amendment, i.e. that Birdwell failed to disclose the steps of initiating transmission by broadcast to a group of recipients, defined as being all capable of receiving transmission by point-to-point transmission (meaning they all must have been turned on and connected to the broadcaster), then completing transmission to that very same defined group by point-to-point transmission. Birdwell does not disclose such a method."

"In this situation, Birdwell does not disclose completing the transfer of an update by point-to-point transmission at all; Birdwell's method assumes that the broadcast will

be effective in transmitting the update to all clients, each one of which will confirm receipt, and thus none of the clients will have need to subsequently request the update, which is a precondition for another transmission attempt. Conversely, if some of the clients of Birdwell are powered off, then Birdwell fails to disclose the limitation of "completing said transferring of said unreceived data by point-to-point communication with at least one of said plurality of recipients" because independent claim 1 limits the claimed "said plurality of recipients" to those capable of receiving the update by point-to-point transmission, at the time of the broadcast. Birdwell would complete transfer of the update to clients not within "said plurality of recipients."

"In addition to the foregoing reasons for distinguishing claim 1 over Birdwell, the applicant has further amended independent claim 1 to include the limitation of "thereafter, completing said transferring of said unreceived data by point-to-point communication with at least one of said plurality of recipients without waiting for a request for said data from any of said at least one of said plurality of recipients." As stated earlier, Birdwell only makes a second transmission attempt if a client, which initially fails to receive the broadcast because it is turned off, subsequently registers a request for the update with the server. See Birdwell at col. 6 lines 41-43 and col. 7 lines 1-11."

Examiner's response:

First of all, Birdwell nowhere in it's teachings indicate any assumption, however, Birdwell teaches opportunistic broadcasting of data as indicated below.

Second, Examiner does not understand what does update represent?

Birdwell teaches at col. 3, line 25-60."In a preferred opportunistic broadcasting system of the present invention, the server computer system (server) receives a request from a client computer system (client) to download data from the server to the client computer system. The data is not only to be downloaded to the requesting client, but also to other clients who have not yet requested the data. The server may have received the data from a provider of data (e.g., contents of magazine) and a list of clients that are to receive the data. Alternatively, a client may have provided the data (e.g., electronic mail) that is to be sent to a list of clients. Also, the server may receive requests from many clients to download the same data. The server may group these multiple requests into a single download request that is to be downloaded to all the requesting clients. Before downloading the data to the requesting client, the server calculates certain transmission characteristics relating to the sending of the data to all the clients who are to receive the data using the point-to-point connection and using the broadcast mechanism. For example, the transmission characteristics may include transmission speed, cost of transmission, availability of the bandwidth for the transmission, and number of clients to whom the data is to be sent. The server uses these transmission characteristics to determine whether to transmit the data through the broadcast mechanism or through the point-to-point connection. For example, if the cost of transmitting through the broadcast mechanism is high and only two clients are to receive the data, then transmission through the point-to-point connection may be selected. Conversely, if the data is to be sent to 100 clients, then the cost of the 100

transmissions through the point-to-point connection may be higher than the cost of only one transmission through the broadcast mechanism. In this case, it may be cost-effective to broadcast the data. Thus, the opportunistic broadcasting system of the present invention selects the more efficient form of transmission based on the transmission characteristics."

As indicated above, Birdwell teaches "For example, if the cost of transmitting through the broadcast mechanism is high and only two clients are to receive the data, then transmission through the point-to-point connection may be selected." And " Conversely, if the data is to be sent to 100 clients, then the cost of the 100 transmissions through the point-to-point connection may be higher than the cost of only one transmission through the broadcast mechanism. In this case, it may be cost-effective to broadcast the data."

Birdwell teaches at col. 2. line 66- col. 3, line 24," The present invention provides a method and system for opportunistic broadcasting of data that is to be downloaded from a server computer system to client computer systems. In a preferred embodiment, a server computer system maintains a collection of data and can be connected to each client computer system through a point-to-point connection. The point-to-point connection can be via direct lines from each client computer system to the server computer system or via a routing network. Using the point-to-point connection, the server computer system can send data to and receive data from the client computer systems. However, if the same data is to be sent to multiple client computer systems using the point-to-point connection, the server computer system would send the same

data multiple times: once for each client computer system. The server computer system also has a broadcasting transmission mechanism, such as a satellite, through which data can be broadcast to all client computer systems simultaneously. Each client computer system has a broadcast reception mechanism for receiving the broadcast data. Thus, when the same data is to be sent to multiple client computer systems, the server computer system can opportunistically broadcast the data and avoid sending the data once for each client computer system that is to receive the data. The server computer system sends the data via the broadcast transmission mechanism when it would be more efficient to do so." Thus Birdwell teaches that a plurality of recipients are capable of receiving the data by point-to-point transmission, at the time of the broadcast as claimed.

In addition Birdwell teaches at col. 4, line 18-29, "Many clients may be running at the time of broadcast, but may not be connected to the server at that time. These clients can receive and process the broadcasted data, but cannot confirm receipt of the broadcast. When such clients eventually connect to the server through the point-to-point connection, they can then confirm receipt of the download. Such clients would then typically request a list of data that the server has available to download to that client. However, since the client has confirmed receipt of some of the downloaded data, the list would not include that downloaded data. Thus, the client would have taken advantage of the broadcast of the data whose download was requested by another client." This scenario is of a paramount importance and is truly depicts the intent of Birdwell calling it the opportunistic broadcasting system."

Thus Birdwell's opportunistic broadcasting system is driven based on as stated by Birdwell "For example, if the cost of transmitting through the broadcast mechanism is high and only two clients are to receive the data, then transmission through the point-to-point connection may be selected." And " Conversely, if the data is to be sent to 100 clients, then the cost of the 100 transmissions through the point-to-point connection may be higher than the cost of only one transmission through the broadcast mechanism. In this case, it may be cost-effective to broadcast the data."

And the process is repeated periodically, does not end after "a second transmission attempt, as indicated by Birdwell at col. 11, line 54-57, " Also, in an alternate embodiment, the server FTC, rather than the server APP, could track clients who have not yet confirmed receipt and periodically retransmit the data."

Thus, Birdwell discloses the steps of initiating transmission by broadcast to a group of recipients, defined as being all capable of receiving transmission by point-to-point transmission (meaning they all must have been turned on and connected to the broadcaster), then completing transmission to that very same defined group by point-to-point transmission.

Applicant's argument:

"Independent claim 10 includes the limitation of "polling at least one said recipient to identify unreceived data." This limitation is not disclosed by Birdwell, which takes no active steps to determine which clients have or have not received an update.

Examiner's response:

Birdwell teaches at col. 10, line 36-39, "FIG. 11 is a flow diagram of the Message Loop of the server APP. The server APP receives from the client APP three messages: "download request," "confirm download," and "request list.". Thus Birdwell teaches ""polling at least one said recipient to identify unreceived data."

Applicant's argument:

"The cited combination fails to disclose or suggest the last three of the quoted Limitations."

Examiner's response:

Please refer to the rejection of claim 6 below.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 10, 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Birdwell et al. (hereinafter Birdwell) (US 5, 793, 973).

Referring to claim 1,

Birdwell teaches a method of transferring data from a distributor to a plurality of recipients (Figs. 1 and 2) comprising the steps of:

(a) broadcasting unreceived data to said plurality of recipients at a time when each said plurality of recipients is capable of receiving said data point-to-point

communication (col. 2. line 66- col. 3, line 24," The present invention provides a method and system for opportunistic broadcasting of data that is to be downloaded from a server computer system to client computer systems. In a preferred embodiment, a server computer system maintains a collection of data and can be connected to each client computer system through a point-to-point connection. The point-to-point connection can be via direct lines from each client computer system to the server computer system or via a routing network. Using the point-to-point connection, the server computer system can send data to and receive data from the client computer systems. However, if the same data is to be sent to multiple client computer systems using the point-to-point connection, the server computer system would send the same data multiple times: once for each client computer system. The server computer system also has a broadcasting transmission mechanism, such as a satellite, through which data can be broadcast to all client computer systems simultaneously. Each client computer system has a broadcast reception mechanism for receiving the broadcast data. Thus, when the same data is to be sent to multiple client computer systems, the server computer system can opportunistically broadcast the data and avoid sending the data once for each client computer system that is to receive the data. The server computer system sends the data via the broadcast transmission mechanism when it would be more efficient to do so." Thus Birdwell teaches that a plurality of recipients are capable of receiving the data by point-to-point transmission, at the time of the broadcast.);

(b) repeating step (a) until a time for the completion of transferring said unreceived data by point-to-point communication with said recipients obtains a predetermined relationship to a time for the completion of said broadcasting; and,

(c) thereafter, completing said transferring of said unreceived data by point-to-point communication with at least one of said plurality of recipients without waiting for a request for said data from any of said at least one of said plurality of recipients (col. 3, line 25-60, "In a preferred opportunistic broadcasting system of the present invention, the server computer system (server) receives a request from a client computer system (client) to download data from the server to the client computer system. The data is not only to be downloaded to the requesting client, but also to other clients who have not yet requested the data. The server may have received the data from a provider of data (e.g., contents of magazine) and a list of clients that are to receive the data. Alternatively, a client may have provided the data (e.g., electronic mail) that is to be sent to a list of clients. Also, the server may receive requests from many clients to download the same data. The server may group these multiple requests into a single download request that is to be downloaded to all the requesting clients. Before downloading the data to the requesting client, the server calculates certain transmission characteristics relating to the sending of the data to all the clients who are to receive the data using the point-to-point connection and using the broadcast mechanism. For example, the transmission characteristics may include transmission speed, cost of transmission, availability of the bandwidth for the transmission, and number of clients to whom the data is to be sent. The server uses these transmission

characteristics to determine whether to transmit the data through the broadcast mechanism or through the point-to-point connection. For example, if the cost of transmitting through the broadcast mechanism is high and only two clients are to receive the data, then transmission through the point-to-point connection may be selected. Conversely, if the data is to be sent to 100 clients, then the cost of the 100 transmissions through the point-to-point connection may be higher than the cost of only one transmission through the broadcast mechanism. In this case, it may be cost-effective to broadcast the data. Thus, the opportunistic broadcasting system of the present invention selects the more efficient form of transmission based on the transmission characteristics.").

Referring to claim 2,

Birdwell teaches the method of claim 1 wherein the step of repeating said broadcasting of unreceived data until a time for transferring said unreceived data by point-to-point communication with said recipients obtains a predetermined relationship to a time for said broadcasting comprises the steps of:

(a) estimating a time to transfer said unreceived data by point-to-point

communication with said recipients (col. 3, line 39-43, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time

of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data."), and

(b) repeating said broadcasting of unreceived data if said time to transfer said unreceived data by point-to-point communication is greater than said time to broadcast said data. (col. 11, line 22-44, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can

be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.")

Referring to claim 3,

Birdwell teaches the method of claim 2 wherein the step of estimating a time to transfer said unreceived data by point-to-point communication with said recipients comprises the steps of: (a) polling at least one recipient to identify for data unreceived by said recipient; (b) estimating a time to successfully transfer said unreceived data to said recipient by point-to-point communication; and (c) summing said estimated times to successfully transfer said unreceived data to recipients reporting unreceived data. (col. 2, line 66 through col. 3, line 14, col. 3, line 39-47, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or

during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.")

Referring to claim 4,

Birdwell teaches the data transfer method of claim 1 wherein the step of repeating broadcast of said unreceived data until a time for transferring said unreceived data by point-to-point communication with said recipients obtains a predetermined relationship to a time for said broadcasting comprises the steps of:

(a) estimating a time to transfer said unreceived said data by point-to-point communication with said recipients, (col. 2, line 66 through col. 3, line 14, col. 3, line 39-47, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur

during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.")

(b) estimating remaining unreceived data following an additional broadcast of said data (col. 3, line 61 through col. 4, line 17); and

(c) rebroadcasting said unreceived data if said time to transfer said unreceived data by point-to-point communication with said recipients is greater than a sum of said time to broadcast said data and a time to transfer said remaining said unreceived data by point-to-point communication (col. 3, line 61 through col. 4, line 17, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the

point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.").

Referring to claim 5,

Birdwell teaches the method of claim 4 wherein the step of estimating a time to transfer said unreceived data by point-to-point communication with said recipients comprises the steps of:

(a) polling at least one recipient to identify unreceived data for said recipient; (b) estimating a time to successfully transfer said unreceived data to said recipient by point to point communication; and (c) summing said estimated times to successfully transfer said unreceived data to recipients reporting unreceived data. (col. 2, line 66 through col. 3, line 14, col. 3, line 39-47, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may

indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.").

Referring to claim 10,

Birdwell teaches a method of transferring data from a data distributor to a plurality of data recipients (Figs 1 and 2)comprising the steps of:

(a) broadcasting unreceived data to said plurality of recipients (col. 3, line 47-49);

(b) polling at least one said recipient to identify unreceived data (col. 10, line 36-39, "FIG. 11 is a flow diagram of the Message Loop of the server APP. The server APP receives from the client APP three messages: "download request," "confirm download," and "request list.". Thus Birdwell teaches ""polling at least one said recipient to identify unreceived data.");

(c) estimating a time for the completion of transferring said unreceived data to said plurality of recipients by point-to-point communication with said recipients (col. 3, line 39-43),

(d) repeating steps (a) through (c) until said point-to-point communication time achieves a predetermined relationship to a time required for the completion of transferring said unreceived data to said plurality of recipients by broadcasting t

said data (col. 11, line 22-44, (col. 3, line 61 through col. 4, line 17, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data."); and,

(f) thereafter, completing said transferring of said unreceived data by point-to-point communication with said plurality of recipients (col. 3, line 61 through col. 4, line 17).

Referring to claim 13,

Birdwell teaches the method of claim 10 wherein the step of repeating said broadcasting of said unreceived data until said time to transfer said unreceived data by point-to-point

communication with said recipients achieves a predetermined relationship to said time for said broadcasting comprises the steps of:

(a) determining a time to transfer said unreceived data by point-to-point communication with each said recipient (col. 2, line 65 – col. 3, line 10),

(b) estimating remaining unreceived data to be transferred after an additional broadcast of said data; and (c) broadcasting said unreceived data again if said time to transfer said unreceived data by point-to-point communication with said recipients is greater than a sum of said time to broadcast said data and a time to transfer said estimated remaining .unreceived data by point-to-point communication. (col. 3, line 61-col. 4, line 17, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point

transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.")

Referring to claim 14,

Birdwell teaches the data transfer method of claim 10 wherein the step of repeating said broadcasting of said unreceived data until a time for transferring said unreceived data by point-to-point communication with said recipients achieves a predetermined relationship to a time for said data broadcasting comprises the steps of:

(a) determining a time to transfer said unreceived data by point-to-point communication with each recipient (col. 2, line 65 – col. 3, line 10),, and

(b) repeating said data broadcasting if said time to transfer said unreceived data by point-to-point communication is greater than said time to broadcast said data. (col. 3, line 61-col. 4, line 17, Birdwell elaborates on the availability of the bandwidth in col. 11, line 22-42," In one embodiment of the present invention, certain transmission characteristics of a broadcast transmission are estimated based on bandwidth that was unused in a previous time interval. For example, if 10K bytes per second of bandwidth was unused on average in the last 10 seconds and a request for transmission characteristics specifies an 1M byte transmission, then the time of transmission is estimated as 100 seconds (i.e.,1M bytes/10K bytes per second). Other transmission characteristics may be based on cost. For example, a request for transmission may indicate that the transmission is to occur during non-prime time or during prime time. The transmission characteristics of the point-to-point connection can be determined in an analogous manner. For example, if the point-to-point connection is a 14K baud

phone line, then an 1M byte transmission may take approximately 570 seconds (i.e., 1M byte * 8 bits per byte/14K bits per second). Similar costs would apply to prime and non-prime time point-to-point transmissions. Once the transmission characteristics are received, the server FTC determines the more efficient way to transmit the data.")

Referring to claim 15,

Birdwell teaches the method of claim 10 further comprising the step of transmitting said unreceived data by point-to-point communication following a predetermined number of broadcasts of said data. (col. 2, line 65 – col. 3, line 10)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6-8, 11, 12, 16-20, 22-24 are rejected under 35 U.S.C. 103(a) as being Unpatentable over Birdwell et al. (hereinafter Birdwell) (US 5, 793, 973) in view of Iwamura et al. (hereinafter Iwamura) (US 6, 396, 814).

Referring to claim 6,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients (Figs 1 and 2) comprising the steps of:

(b) broadcasting unreceived data units to said recipients(col. 3, line 47-49);

(d) polling at least one said recipient to identify data units not successfully received by said polled ones of said plurality of recipients; and (e) transferring said unreceived data units by point-to-point communication. (col. 3, line 61 through col. 4, line 17).

Birdwell fails to teach (a) designating a representative recipient; (c) repeating step (b) until said representative acknowledges successful receipt of said plurality of data units.

Iwamura teaches the communication network construction method (a) designating a representative recipient (col.14, lines 32-40); and (c) repeating step (b) until said representative acknowledges successful receipt of said plurality of data units (col.14, lines 43-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claims 7 and 8,

Keeping in mind the teachings of Birdwell as stated above, Birdwell teaches (a) broadcasting a plurality of data units to said recipients (col. 3, line 47-49); (b) polling at least one said recipient to establish success in receiving said data units; and (b) polling a recipient following a broadcast of said data units to identify said unreceived data units for said polled recipient; (c) repeating step (b) for a plurality of recipients; (col. 3, line 61 through col. 4, line 17).

Birdwell fails to teach (c) designating as said representative said recipient having said success most representative of said success of said plurality of recipients, and (d) designating as said representative a recipient reporting unreceived data most representative of that reported by said polled ones of said plurality of recipients.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each

device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 9,

Birdwell teaches the method of claim 6 further comprising the steps of: (a) a first recipient reporting success in receiving said data units from said first broadcast; and (b) another recipient reporting success in receiving said data units from another broadcast. (col. 3, line 61 through col. 4, line 17).

Referring to claim 11,

Birdwell teaches the method of claim 10 wherein the step of polling at least one recipient following a broadcast of said data to identify said unreceived data comprises the (col. 3, line 61-col. 4, line 17) steps of:

(a) polling a plurality of said recipients following a broadcast of said data to identify said unreceived data for each said polled recipient (col. 3, line 61-col. 4, line 17).

Birdwell fails to teach (b) identifying a representative recipient reporting said unreceived data most representative of said unreceived data reported by all polled recipients; and (c) said representative recipient reporting the identify said unreceived data on behalf of all said recipients following a subsequent broadcast.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and

"Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 12,

Birdwell teaches the method of claim 10 wherein the step of polling at least one recipient following a broadcast of said data to identify said unreceived data comprises the steps of: (a) polling a first recipient following a broadcast to identify said unreceived data for said polled first recipient;(b) polling a second recipient following another broadcast of said data to identify said unreceived data for said polled second recipient; (c) repeating step (b) for ell a plurality of polled second recipients (col. 3, line 61- col. 4, line 17)

Birdwell fails to teach (d) identifying a representative second recipient reporting unreceived data most representative of said unreceived data reported by said plurality

of polled second recipients; and, (e) thereafter, said representative second recipient reporting said unreceived data for said plurality of data recipients following a broadcast of said data.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative

devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 16,

Birdwell teaches a method of transferring data from a data distributor to a plurality of data recipients (Figs. 1 and 2) comprising the steps of:

(a) broadcasting unreceived data to said recipients (col. 3, line 47-49);

(b) polling said recipients to identify unreceived data (col. 3, line 60-col. 4, line 17);

(d) estimating a time for transferring unreceived data to said plurality of recipients by point-to-point communication with each recipient;(col. 2, line 65-col. 3, line 10)

(e)rebroadcasting said data to said recipients if said estimated time to transfer said unreceived data by point-to-point communication is less than a time required to broadcast said data; (col. 3, line 25-59)

(g) repeating steps (c), (d), and (e) until said estimated time to transfer said unreceived data by point-to-point communication is less than a time required to broadcast said data; and (h) thereafter transferring said unreceived data by point-to-point communication with said data recipients.(col. 3, line 60-col. 4, line 17)

Birdwell fails to teach (c) identifying a representative recipient reporting unreceived data most representative of said unreceived data reported by said polled data recipients', (f) polling said representative to identify said unreceived data.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col. 14, lines 32-45, col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative

devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 17,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients (figs 1 and 2) comprising the steps of:
(a) broadcasting a plurality of data units to said recipients (col. 3, line 47-49);
(b) polling at least one said recipient to establish success in receiving said data units; (c) comparing said success of at least two recipients,(Fig. 2, col. 6 line 12-col. 7, line 30); (e) broadcasting data units to said recipients; (g) polling at least one said recipient to identify data units not successfully received by said recipient', and,(h) thereafter, transferring said unreceived data units to said recipient by point-to-point communication. (col. 3, line 25-59, col. 3, line 60-col. 4, line 17)

Birdwell fails to teach (d) designating as a representative said recipient having said success most representative of said success of said plurality of recipients;
(f) repeating step (e) until said representative acknowledges successful receipt of said plurality of data units.

The reference Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what

communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45, col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the

number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 18,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients (Figs. 1 and 2)comprising the steps of: (a) broadcasting said plurality of data units to said recipients (col. 3, line 47-49); (b) a first recipient identifying unreceived data following a broadcast of said data; (c) rebroadcasting said plurality of data units to said recipients; (d) another recipient identifying unreceived data following said rebroadcast of said data; (e) comparing said unreceived data identified by said recipient and said unreceived data identified said another recipient; (Fig. 2, col. 6, line 12-col. 7, line 30); (h) polling at least one said recipient to identify data units not successfully received by said recipient; and, (i) thereafter, transferring said unreceived data units to said recipient by point-to-point communication. (col. 3, line 60- col. 4, line 17, col. 3, line 25-59).

Birdwell fails to teach (f) designating as representative recipient a recipient reporting unreceived data most typical of unreceived data reported by said recipients;(g) broadcasting said data units until said representative acknowledges successful receipt of said plurality of data units;

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45,

col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 19,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients (Figs. 1 and 2)comprising the steps of: (b) broadcasting a data unit to said plurality of recipients; (c) repeating step (b) until said representative recipient acknowledges successful receipt of said data unit; (e) polling at least one said plurality of recipients to identify data units not successfully received by polled ones of said plurality of recipients; and (f) transferring unreceived said data units by point-to-point communication. (col. 3, line 25 through col. 4, line 17)

Birdwell fails to teach (a) designating a representative recipient; and (d) repeating steps (b) and (c) for a plurality of data units.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45, col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.",

and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 20,

Keeping in mind the teachings of Birdwell, Birdwell teaches (a) broadcasting a plurality of data units to said recipients; (b) polling at least one said recipient to establish success in receiving said data units; (col. 3, line 60-col. 4, line 17) .

Birdwell fails to teach (c) designating as said representative said recipient having said success most representative of said success of said plurality of recipients.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45,

col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 22,

Birdwell teaches the method of claim 19 further comprising the steps of: (a) a first recipient reporting success in receiving said data units from said first broadcast; and (b) another recipient reporting success in receiving said data units from another broadcast. (fig. 2, col. 6, line 12-col. 7, line 30)

Referring to claim 23,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients comprising the steps of: (a) broadcasting a plurality of data units to said recipients (col. 3, line 47-49); (b) polling at least one said recipient to establish success in receiving said data units; (d) broadcasting a data unit to said recipients; (g) polling at least one said recipient to identify data units not successfully received by said recipient', and, (h) thereafter, transferring said unreceived data units to said recipient by point-to-point communication. 9col. 3, line 25- col. 4, line 17)

Birdwell fails to teach (c) designating as a representative said polled recipient having said success most representative of said success of said plurality of recipients; (e) repeating step (d) until said representative acknowledges successful receipt of said data unit; (f) repeating steps (d) and (e) until said representative acknowledges successful receipt of said plurality of data units.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45, col. 13, lines 58-59, "This graph is considered to represent the status of the network at

a given time point", lines 63 thru col. 14, lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Referring to claim 24,

Birdwell teaches a method of transferring a plurality of data units from a distributor to a plurality of recipients (Figs. 1 and 2) comprising the steps of: (a) broadcasting said plurality of data units to said plurality of recipients (col. 3, line 47-49); (b) identification of unreceived data by a first recipient following said broadcast of said data;(c) rebroadcasting said plurality of data units to said plurality of recipients;(d) identification of unreceived data by another recipient following said rebroadcast of said data;(e) comparing said unreceived data identified by said first recipient and unreceived data identified by said another recipient; (i) polling at least one said recipient to identify data units not successfully received by said plurality of recipients; and (j) thereafter, transferring unreceived data units by point-to-point communication. (Fig. 2, col. 6, line 12-col. 7, line 29, col. 3, line 60-col. 4, line 17).

Birdwell fails to teach (f) designating as representative recipient a recipient reporting unreceived data most typical of unreceived data reported by all said plurality of recipients;(g) broadcasting a data unit until said representative acknowledges successful receipt of said of data unit;(h) repeating step (g) for said plurality of said data units.

Iwamura teaches the communication network construction method wherein how the group is formed and how a representative is selected, what communication capabilities the grouped devices have and the group representative has, thereby it teaches the claimed elements in the context of the broadcasting. (col.14, lines 32-45, col. 13, lines 58-59, "This graph is considered to represent the status of the network at a given time point", lines 63 thru col. 14,

lines 1-50, Note: "First, in order to produce the graph of FIG. 2, each device broadcasts a device message. The device message includes the information on the device broadcasting it and the information on the communicable devices determined taking the device messages from other devices into consideration. Each device judges whether it can or cannot communicate with other devices by receiving a device message from them. Further, the information on the communicable devices thus identified is broadcast with a device message, upon receipt of which each device can collect the data required for constructing the graph of FIG. 2.", and "Similarly, the device message exchanged in each group is the one relating to the devices belonging to the particular group.").

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the teachings of Birdwell by the capabilities of the representative device of Iwamura such that the representative device alone will have to communicate with the devices in the group as well as the other representative devices in the network such as any other broadcasting device. The representative devices not only reduce the device messages providing the configuration management information but also, in the handshake between the devices of different groups, have the function to consolidate the response messages and to prevent the increase in the number of messages that a device is required to receive at a time, as explained by Iwamura.

Relevant Prior Art

Examiner would like to request the Applicant to consider the teachings of the

following prior art as well.

Haumont (US 6, 466, 552) teaches at col. 3, line 18-col. 4, line 49, "15,

"Criteria Establishment

Referring now to FIG. 3, a flow chart illustrating the decision making process will now be described. In step 3-1 the support node SGSN receives from the PTM server PTM-SC a group message including the identity of the group (IMGI) and the geographical area to which this group message should be sent. In step 3-2 the support node SGSN checks each routing area of this geographical area in order to find out whether at least one group member is registered or not. If none are registered, the SGSN determines in step 3-3 that there are no messages to send to this routing area. However, if X (X being at least equal to 1) group members are registered, the process advances to step 3-4 where the support node SGSN applies an algorithm to determine the optimal transmission mode (broadcast or point-to-point) for this number X. A suitable algorithm will be described below in greater detail. If the SGSN determines that the criteria for broadcasting are fulfilled, the process advances to steps 3-5 and 3-6 where the SGSN broadcasts the message with n repetitions and waits for the acknowledgments from the mobile stations MS. The process repeats the loop consisting of steps 3-4, 3-5 and 3-6 until the SGSN determines that a sufficient number of mobile stations MS have acknowledged reception of the message (or the loop has been repeated the maximum number of times) and the criteria for broadcasting are no longer fulfilled. At this point, the process advances to step 3-7 because the SGSN can make better use of the available resources by sending the group message over point-to-point connections to those mobile stations MS that have not acknowledged reception of the message. In step 3-8 the support node SGSN can send a report to the PTM server indicating the quality of service (QoS) used and optionally a list of subscribers that have received (or missed) the message.

One possible test for determining the optimal transmission mode will now be explained in greater detail. In the discussion, the following notation will be used: "C" denotes the number of cells in the routing area. "X" denotes the number of group members in the routing area. "X.sub.c " denotes the number of group members per cell (X.sub.c =X/C). "S(paging)" denotes the size of the paging message per cell. "S(PTM-G)" denotes the size of the PTM-G message to be sent. "S(ack)" denotes the size of the acknowledgment. "p" denotes the probability of receiving a broadcast message correctly (this parameter depends on the size of the message, the number n of the times the message is broadcast, radio conditions, etc.)

If the message is transmitted over individual (=PTP) connections to all mobile stations of the group, the load generated can be calculated from:

L(I)=C*X*S(paging)+X*S(PTM-G)

If, however, the message is broadcast with n repetitions to all mobile stations of the group before being sent with PTM, the load generated can be calculated from:

L(B)=n*C*S(PTM-G)+X*p*S(ack)+C*X*(1-p)*S(paging)+X*(1-p)*S(PTM-G)

The criterion for broadcasting the message is: L(B)<L(I), or:

n*C*S(PTM-G)+X*p*S(ack)<p*C*X*S(paging)+p*X*S(PTM-G)

As we can assume that X*p*S(ack)<p*C*X*S(paging) is always true, the criteria will be fulfilled if: n*C<X*p

If we use X.sub.C which has been defined as the number of group subscribers per cell, i.e. C*X.sub.C =X, an even simpler formula can be obtained: n<p*X.sub.C

The value of p depends on many parameters, and it is difficult to know their values with good accuracy. These parameters include the number n of repetitions, the size of the message, and the transmission conditions. Thus it is difficult to calculate the value of p accurately, and in practice it can be determined experimentally by keeping track of the acknowledgments to previous messages. Ideally, the SGSN should maintain for each routing area an updated value of p which is calculated using the previous value measured. Let us assume for example that n=2, p=75% and X.sub.C =4. These parameters fulfill the criteria because 2<3. In other words, the load generated by the method according the invention is more than 1/3 smaller than the load generated by prior art transmission methods. This advantage is most noticeable at the air interface in high-density areas, because it is very difficult to increase the capacity of the air interface. Very often, increasing the capacity of the air interface requires installations of additional base stations and/or reorganization of the frequency re-use pattern of several neighbouring base stations."

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (571) 272-3972. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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